This may have been exaggeration, but no ordinary strength of cables can long resist the momentum produced by such a weight falling even 15 feet. The destruction of that bridge was clearly owing to a want of stability, and not to a want of strength. This want of stiffness could have been supplied by over floor-stays, truss railings, under-floor stays, or cable-stays. If by these means no high degree of stiffness could have been obtained, they would at any rate have proved quite sufficient to check oscillations, and to keep them within safe limits. In the Niagara Bridge most ample provisions for stability have been made. The superstructure forming a hollow box, or beam of 24 ft. wide by 20 ft deep, with solid girders of five feet depth, and effective trusses, possesses enough of stiffness, to resist the action of any gale. To be prepared however for the greatest emergency, there are 56 wire rope stays or guys attached to the lower floor, which are firmly anchored either to the solid rock of the cliffs, or to large masses of detached rock. Each of these ropes has an ultimate strength of 30 tons, they would therefore resist with an aggregate force of 1680 tons. But owing to their inclinations they would probably not oppose a greater resistance than 1000 tons, if that pressure was vertically applied against the lower floor. The ordinary tension of these stays does not exceed two to three tons.

Now the weight of the bridge without the cables and stays, is - - -	600 tons.
To this add the anchorage at each end of the lower floor, which I estimate at	300 "
Resistance of cables in center, - -	100 "
Resistance of stays is, - -	1000 "
Total, - - -	2000 tons.